

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Group Art Unit No.: NYA

Wilson Wai Shun Chan et al.

Examiner: NYA

Serial No.: NYA

Filed on: Herewith

For: TECHNIQUES FOR GRANTING SHARED  
LOCKS MORE EFFICIENTLY

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination of the above-referenced application, please amend the application as follows:

**IN THE CLAIMS:**

Please amend the claims as follows:

1. (Amended) A method for managing access to a resource that is accessible to a plurality of entities, the method comprising the steps of:
  - for each entity of said plurality of entities, maintaining, local to said entity, data that indicates whether any other entity of said plurality of entities has an exclusive lock on said resource;
  - for each entity of said plurality of entities that seeks to acquire a shared lock, performing the steps of:
    - checking the data that is local to the entity;

9 if the data indicates that an exclusive lock has not been granted to any  
10 [one] of the other [entity] entities of said plurality of entities, then  
11 the entity acquiring said shared lock without receiving a lock grant  
12 from a resource master of said resource; and  
13 if the data indicates that an exclusive lock has been granted to any [one] of  
14 the other [entity] entities of the plurality of entities, then the entity  
15 acquiring said shared lock only after said exclusive lock is released  
16 by the entity that has been holding said exclusive lock.

- 1 2. (Not Amended) The method of Claim 1 wherein the entity acquires said shared lock  
2 without communication with the resource master of the resource.
- 1 3. (Amended) The method of Claim 1 wherein the step of the entity acquiring said shared  
2 lock only after the exclusive lock is released is performed by the step of [continuing]  
3 repeatedly checking the data that is local to the entity until that data indicates that the  
4 exclusive lock has been released by the entity that has been holding the exclusive lock.
- 1 4. (Not Amended) The method of Claim 1 wherein the step of the entity acquiring said  
2 shared lock only after the exclusive lock is released is performed after a step of receiving  
3 a message from the resource manager notifying that the entity is allowed to acquire said  
4 shared lock.
- 1 5. (Amended) The method of Claim 1, upon the exclusive lock [has been] being released by  
2 the entity that has been holding the exclusive lock, performing the step of updating each

data of the plurality of entities to reflect that none of the plurality of entities is holding an exclusive lock.

6. (Not Amended) The method of Claim 5 wherein the step of updating is initiated by the resource manager that broadcasts messages to the plurality of entities for each entity of the plurality of entities to modify the data corresponding to the each entity.

7. (Not Amended) The method of Claim 1 wherein an entity of said plurality of entities is a database server.

8. (Not Amended) A method for managing access to a resource that is accessible to a plurality of entities, the method comprising the steps of:

for each entity of said plurality of entities, maintaining, local to said entity, data that indicates whether any other entity of said plurality of entities has an exclusive lock on said resource;

for each entity of the plurality of entities that seeks to acquire an exclusive lock, performing the steps of:

requesting, from a resource manager, said exclusive lock for said entity;

wherein said resource manager manages access to said resource;

if no conflicting lock is being held by any other entity of the plurality of entities, then

said entity acquiring said exclusive lock, and

updating the data of the plurality of entities to reflect that an

exclusive lock is being held by one of the plurality of

entities.

1 9. (Not Amended) The method of Claim 8 wherein, upon recognizing that no conflicting  
2 lock is being held by any of the entity of the plurality of entities, then the resource  
3 manager allowing the entity that seeks to acquire an exclusive lock to acquire that  
4 exclusive lock.

1 10. (Not Amended) The method of Claim 8, wherein, if an exclusive lock is being held by  
2 any entity of the plurality of entities, then indicating to the entity that is holding said  
3 exclusive lock that another entity of the plurality of entities is waiting for a lock.

1 11. (Amended) The method of Claim 10, wherein, upon said exclusive lock is being released  
2 by the entity that is holding said exclusive lock, indicating to the [lock] resource manager  
3 that said exclusive lock has been released by the entity that is holding said exclusive lock.

1 12. (Amended) The method of Claim 8, wherein, if a shared lock is being held by any entity  
2 of the plurality of entities, then indicating to all entities that are holding a shared lock that  
3 an entity of the plurality of entities is waiting for [a] an exclusive lock.

1 13. (Amended) The method of Claim 12 wherein each entity of all entities that is holding a  
2 shared lock, upon releasing said shared lock, indicates to said [lock] resource manager  
3 that the corresponding shared lock that is held by that entity has been released.

1 14. (Not Amended) The method of Claim 8 wherein an entity of the plurality of entities is a  
2 database server.

1 15. (Amended) A computer-readable medium carrying instructions for managing access to a  
2 resource that is accessible to a plurality of entities, the instructions including instructions  
3 for performing the steps of:

4 for each entity of said plurality of entities, maintaining, local to said entity, data  
5 that indicates whether any other entity of said plurality of entities has an  
6 exclusive lock on said resource;

7 for each entity of said plurality of entities that seeks to acquire a shared lock,  
8 performing the steps of:

9 checking the data that is local to the entity;

10 if the data indicates that an exclusive lock has not been granted to any

11 [one] of the other [entity] entities of said plurality of entities, then

12 the entity acquiring said shared lock without receiving a lock grant

13 from a resource master of said resource; and

14 if the data indicates that an exclusive lock has been granted to any [one] of

15 the other [entity] entities of the plurality of entities, then the entity

16 acquiring said shared lock only after said exclusive lock is released

17 by the entity that has been holding said exclusive lock.

1 16. (Not Amended) The computer-readable medium of Claim 15 wherein the entity acquires  
2 said shared lock without communication with the resource master of the resource.

1 17. (Amended) The computer-readable medium of Claim 15 wherein the step of the entity  
2 acquiring said shared lock only after the exclusive lock is released is performed by the  
3 step of [continuing] repeatedly checking the data that is local to the *entity until that data*

indicates that the exclusive lock has been released by the entity that has been holding the exclusive lock.

18. (Not Amended) The computer-readable medium of Claim 15 wherein the step of the entity acquiring said shared lock only after the exclusive lock is released is performed after a step of receiving a message from the resource manager notifying that the entity is allowed to acquire said shared lock.

19. (Not Amended) The computer-readable medium of Claim 15 further including instructions for updating, in response to the exclusive lock being released by the entity that has been holding the exclusive lock, each data of the plurality of entities to reflect that none of the plurality of entities is holding an exclusive lock.

20. (Not Amended) The computer-readable medium of Claim 19 wherein the step of updating is initiated by the resource manager that broadcasts messages to the plurality of entities for each entity of the plurality of entities to modify the data corresponding to the each entity.

21. (Not Amended) The computer-readable medium of Claim 15 wherein an entity of said plurality of entities is a database server.

22. (Not Amended) A computer-readable medium carrying instructions for managing access to a resource that is accessible to a plurality of entities, the instructions including instructions for performing the steps of:

4 for each entity of said plurality of entities, maintaining, local to said entity, data  
5 that indicates whether any other entity of said plurality of entities has an  
6 exclusive lock on said resource;  
7 for each entity of the plurality of entities that seeks to acquire an exclusive lock,  
8 performing the steps of:  
9 requesting, from a resource manager, said exclusive lock for said entity;  
10 wherein said resource manager manages access to said resource;  
11 if no conflicting lock is being held by any other entity of the plurality of  
12 entities, then  
13 said entity acquiring said exclusive lock, and  
14 updating the data of the plurality of entities to reflect that an  
15 exclusive lock is being held by one of the plurality of  
16 entities.

1 23. (Not Amended) The computer-readable medium of Claim 22 carrying instructions to  
2 cause the resource manager to allow the entity that seeks to acquire an exclusive lock to  
3 acquire that exclusive lock if no conflicting lock is being held by any of the entity of the  
4 plurality of entities.

1 24. (Not Amended) The computer-readable medium of Claim 22, carrying instructions for  
2 indicating to the entity that is holding said exclusive lock that another entity of the  
3 plurality of entities is waiting for a lock when an exclusive lock is being held by any  
4 entity of the plurality of entities.

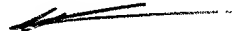
1 25. (Not Amended) The computer-readable medium of Claim 22, carrying instructions for  
2 indicating to all entities that are holding a shared lock that an entity of the plurality of  
3 entities is waiting for a lock if a shared lock is being held by any entity of the plurality of  
4 entities.

1 26. (Amended) The computer-readable medium of Claim [26] 22 carrying instructions for  
2 causing each entity of all entities that [is] are holding a shared lock, upon releasing said  
3 shared lock, to indicate[s] to said [lock] resource manager that the corresponding shared  
4 lock that is held by that entity has been released.

This preliminary amendment is being submitted to correct typographical and syntax  
errors.

Respectfully submitted,

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